

# PATENT ABSTRACTS OF JAPAN

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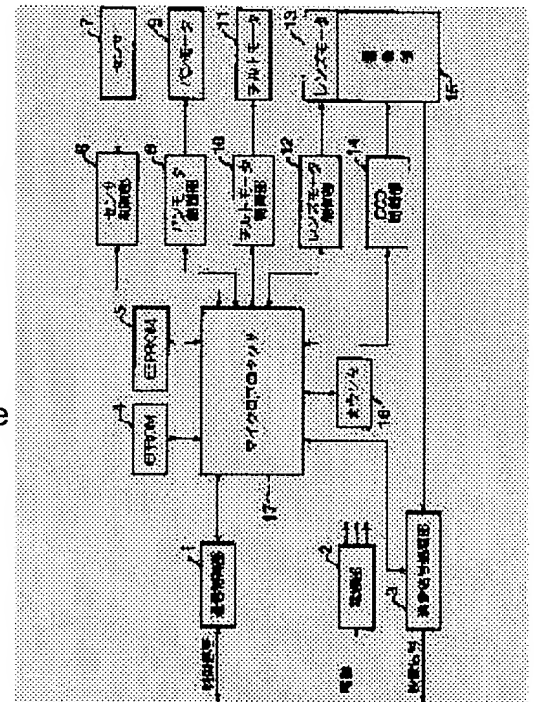
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## (54) MONITORING CAMERA SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To easily clear specify up the cause of a fault.

SOLUTION: A counter 16 counts an actual operating time after application of power of the monitoring camera system and stores it to an EEPROM 5, and the counter 16 counts a preset operating number of times or a preset operating time preset from an external controller and stores it to the EEPROM 5. Thus, should a fault take place, the manner of unique use of the camera system by the user can be comprehended, and the fault is quickly dealt with or recovered.



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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the surveillance camera equipment which supervises a perimeter situation through a surveillance camera.

[0002]

[Description of the Prior Art] In a bank, the store, the recreation hall, the department store, a museum, an art gallery that are exhibiting valuables, etc., although surveillance camera equipment is mainly used as an object for crime prevention, it is used also as a safety check or an object for accident preventions with the skyscraper. As for surveillance camera equipment, it is common to supervise projecting the image which attached in the outdoors or indoor predetermined location the camera which contained CCD, and photoed it with this camera with the monitor TV of a building manager office. Although a camera is turned to an one direction and it fixes in a fixed point observation with a camera, when observing a perimeter with one camera, it has the device for making the pan actuation which makes it circle in a camera horizontally, and the tilt actuation which makes it circle perpendicularly perform. Furthermore, a zoom device is attached in a camera and there is also equipment to which an image is expandable if needed. Moreover, the photoed image is recorded on the video tape etc. and there is also equipment which can reproduce an image on a monitor afterwards.

[0003]

[Problem(s) to be Solved by the Invention] However, since how to use by the user differed with conventional surveillance camera equipment even if it is equipment of the same structure and the same specification, when failure occurred, it was difficult [ it ] to specify the cause. For example, in spite of using the same surveillance camera equipment and being in the almost same operating environment, when the probability of occurrence of failure differed at A company and B company, it was difficult at A company and B company to specify the cause.

[0004] This invention solves such a conventional problem, specifies the cause of failure easily, and aims at offering the surveillance camera equipment which can raise the maintenance engine performance.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, by preparing the nonvolatile memory which records the hysteresis of operation behind powering on on surveillance camera equipment, and analyzing the contents recorded on this nonvolatile memory, this invention specifies the cause of generating of failure, and can raise the maintenance engine performance.

[0006]

[Embodiment of the Invention] In the surveillance camera equipment which supervises a perimeter situation based on the image photoed with the surveillance camera, invention of this invention according to claim 1 is surveillance camera equipment characterized by recording the hysteresis of operation behind powering on on nonvolatile memory, and has an operation that the cause of generating of failure can be specified, by analyzing the contents recorded on nonvolatile memory.

[0007] invention of this invention according to claim 2 -- the count of presetting actuation -- and -- or the count of the presetting actuation which is surveillance camera equipment according to claim 1 characterized by recording the presetting operating time, and the user specified -- and -- or it has an operation that a user's original usage can be analyzed, by recording time amount.

[0008] Invention of this invention according to claim 3 is surveillance camera equipment according to claim 2 characterized by recording the accumulating totals of the count of presetting actuation, or the presetting operating time for every predetermined time, and has an operation that a cause of fault can be specified easily, by recording the accumulating totals of the count of presetting actuation, or the presetting operating time for every predetermined time.

[0009] Invention of this invention according to claim 4 is surveillance camera equipment according to claim 1 characterized by recording the fault of operation generated according to the fault item of operation set up beforehand, and has an operation that a cause of fault can be specified easily, by setting up a fault item of operation beforehand and recording the fault which is in agreement with the fault item.

[0010] Invention of this invention according to claim 5 is surveillance camera equipment according to claim 4 characterized by recording the count of generating and the newest fault item of operation of fault of operation, and has an operation that a cause of fault can be specified easily, by recording the count of generating and the newest fault item of operation of fault of operation.

[0011] Invention of this invention according to claim 6 is surveillance camera equipment according to claim 1 characterized by recording the accumulating totals of the count of endpoint attainment of the machine movement device section for every predetermined time, and has an operation that a cause of fault can be specified easily, by recording the accumulating totals of the count of endpoint arrival of the machine movement device section for every predetermined time.

[0012] Invention of this invention according to claim 7 is surveillance camera equipment according to claim 1 characterized by recording the contents of a communication link with an external controller, and has an operation that a cause of fault can be specified easily, by recording the contents of a communication link with an external controller.

[0013] invention of this invention according to claim 8 -- the temperature inside equipment -- and -- or surveillance camera equipment given in either of claims 1-7 characterized by recording humidity -- it is -- the temperature inside equipment -- and -- or it has an operation that a cause of fault can be specified easily, by recording humidity.

[0014] (Gestalt 1 of operation) The gestalt of operation of this invention is hereafter explained with reference to a drawing. Drawing 1 is the block diagram showing the outline configuration of the surveillance camera equipment in the gestalt of operation of this invention. The communications control section which delivers and receives a control signal between the controllers by which 1 has been arranged in drawing 1 at the monitor room at which a hitcher on stays, the power supply section which supplies 2 to each part in surveillance camera equipment in response to supply of a power source from a controller, and 3 are the video-signal processing sections which send out the video signal for projecting an image on the monitor TV connected to the controller in response to the signal from the image pick-up section 15, or recording on videotape on VTR. A control signal and a video signal may be superimposed by one cable, and may be superimposed by the still more nearly same cable as a power source. EPROM which stored the program 4 operates [ program ] surveillance camera equipment, and 5 are EEPROMs which record the hysteresis of operation behind powering on, and other data. Both EPROM4 and EEPROM5 are nonvolatile memory, EPROM4 can perform elimination of data by the exposure of ultraviolet rays, writing for the second time is possible, and since elimination of data can do EEPROM5 electrically, rewriting of data is easy. 6 is the sensor control section and detects the signal from various kinds of sensors 7, such as a temperature sensor which detects the temperature and humidity in equipment, a humidity sensor, a sensor which detects closing motion of a door or an aperture, and a sensor which detects a person. 8 is the pan motor control section and controls rotation of the pan motor 9 for making it circle in a surveillance camera horizontally. 10 is the tilt motor control section and controls rotation of the tilt motor 11 for making it circle perpendicularly in a surveillance camera. 12 is the lens motor control section, controls rotation of the lens motor 13 of a surveillance camera, and controls a zoom and an automatic focus. 14 is a CCD control section and controls the drive of CCD in the image pick-up section 15. 16 is a counter and is equipped with the counter which carries out counting of the count of generating of the real operating time or fault of operation. 17 is a microprocessor (henceforth a microcomputer) and controls the whole equipment.

[0015] Next, the actuation in the gestalt 1 of operation of this invention is explained. Before operating equipment, presetting is performed from the controller which is in a monitor room by the user. Since a user specifies the candidate for a monitor, this is a setting-up beforehand-in which direction the image pick-up section 15 is turned thing, for example, it sets up angle of rotation of a camera so that the door and aperture which are indoors may be supervised in order. And if a power source is supplied to each part from a power supply section 2, the presetting signal from a controller will be sent to the communications control section 1, and a microcomputer 17 will be written in the predetermined field of EEPROM5. When each part operates and photography by the image pick-up section 13 is started, a microcomputer 17 makes a counter 16 start measurement of the real operating time. The measurement by the counter 16 carries out counting of whether it operated in between within 1 hour, or when it operated in between within one day. The real operating time by which counting was carried out is stored in the predetermined field of EEPROM5.

[0016] On the other hand, if actuation of equipment is started, a microcomputer 17 reads a program of operation from EPROM4, will make a counter 16 carry out counting of the count and time amount of the actuation by

which presetting was carried out to every hour and day by day [ 1 ], and will write the result in EEPROM5 while controlling each part according to the contents of presetting which began to be composed from EEPROM5. Or the count and time amount of presetting actuation are added continuously, and it records on EEPROM5.

[0017] Thus, if failure should occur by carrying out counting of the real operating time behind powering on of surveillance camera equipment, or reaching the number of presetting actuation times, or recording the presetting operating time according to the gestalt 1 of this operation, by analyzing the contents recorded on EEPROM5, a user's original usage can be grasped and the quick correspondence or the restoration to failure can be aimed at.

[0018] (Gestalt 2 of operation) Next, the gestalt 2 of operation of this invention is explained. In the gestalt of this operation, the fault item of operation beforehand set up from the controller which is in a monitor room by the user is inputted, and the fault item is written in EEPROM5 through the communications control section 1. Fault items of operation are signal resendings in the case of not rotating, even if it sends, the poor signal transfer, for example, the rotation signal, between the pan motor control section 8 and the pan motor 9 and between the tilt motor control section 10 and the tilt motor 11, but sending a rotation signal again etc. If a microcomputer 17 receives such poor signal transfer from the pan motor control section 8 and the tilt motor control section 10, having caused poor signal transfer to the count of generating and newest will record either on EEPROM5.

[0019] Thus, if failure should occur by recording the count of generating and the newest fault item of operation of fault of operation which were generated according to the fault item of operation set up beforehand according to the gestalt 2 of this operation, the cause of failure can be grasped easily and the quick correspondence or the restoration to failure can aim at by analyzing the contents recorded on EEPROM5.

[0020] (Gestalt 3 of operation) Next, the gestalt 3 of operation of this invention is explained. Although a lens carries out the straight-line reciprocating motion of the range from a wide angle to looking far with the gestalt 3 of this operation in case the lens motor 13 is controlled, for example by the lens motor control section 12 and a zoom is made to perform, in the max of the amount of zoom, and the minimum endpoint, the carriage carrying a lens will collide with a stopper and the probability for failure to occur with the impact becomes high. Then, specification when the fault of a lens of operation occurs can be easily performed carrying out counting of the count to which the lens motor control section 12 sent such a zoom signal for the accumulating totals of a count in which the lens arrived at the max of the amount of zoom, and the minimum endpoint, or by carrying out counting of the signal from a limit switch formed in the endpoint.

[0021] (Gestalt 4 of operation) Next, the gestalt 4 of operation of this invention is explained. With the gestalt 4 of this operation, cause specification at the time of breaking down can be easily performed by recording the contents of the communication link log in the communications control section 1 on EEPROM5, and recording the signal of the command in a communication link log, data, time of day, an alarm, etc.

[0022] (Gestalt 5 of operation) Next, the gestalt 5 of operation of this invention is explained. With the gestalt 5 of this operation, if failure should occur by recording the signal showing the temperature and humidity from the temperature sensor in a sensor 7, and a humidity sensor on EEPROM5, temperature and humidity can specify it as one of the causes of failure, when unusually high.

[0023]

[Effect of the Invention] As mentioned above, since the cause of generating of failure was specified by preparing the nonvolatile memory which records the hysteresis of operation behind powering on on surveillance camera equipment, and analyzing the contents recorded on this nonvolatile memory according to this invention, specification of failure is easy, can aim at the quick correspondence or the restoration to failure, and can raise the maintenance engine performance.

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[Translation done.]